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We enjoyed reading the Article by Burnstein and colleagues entitled, ‘Not the Last Word: Safety Alert: One in 200 Knee Replacement Patients Die Within 90 Days of Surgery.’ However, we believe knee replacement to be significantly safer than suggested.

Three large cohort studies were used to estimate a 90 day mortality of 0.6% (2559 total deaths among 428,574 patients), or one in 200 as suggested in the title. The period of data collection this calculation is based on was not reported and is of critical importance: Katz and colleagues reported mortality among Medicare beneficiaries using data collected during an eight month period in 2000 [3]. Mahomed and colleagues also studied Medicare beneficiaries receiving TKA during the year 2000 [4]. SooHoo studied patients receiving TKA in California between 1991-2001 [7]. Burnstein’s “back-of-the-envelope meta-analysis” estimate of mortality therefore pertains to data collected exclusively prior to 2001.

A significant temporal decline in mortality after TKA has been demonstrated within other large cohort studies of mortality after TKA. Sing and colleagues used data from the Mayo clinic registry of 12,484 TKAs to show that 90 day mortality fell from 0.62% in the period 1994 to 1996, to 0.31% in the period 2006 to 2008 ($p=0.02$) [6]. Hunt and colleagues also observed a reduction in 45 day mortality from 0.37% in 2003, to 0.20% in 2011 in a registry study of 467,779 total knee replacements, even after adjusting for small differences in age and gender during the time period of observation [2]. A smaller study by Huddleston and colleagues (including 2,033 TKAs) identified a non-significant trend towards declining 30 day mortality from 0.44% in 2002 to 0.17% in 2004 [1].

As a result of these temporal trends, contemporary studies of 90 day mortality following TKA report rates in the range 0.14% to 0.31%. It appears therefore that a more accurate estimate of 90 day mortality is approximately 0.2% or 1 in 500.

Some of the observed mortality in this elderly population is unrelated to surgery. The work of Parry and colleagues illustrates this point. Parry studied the 90 day mortality of patients on the waiting list for TKA and compared this with mortality in the 90 days following surgery [5]. The odds of mortality doubled postoperatively (odds ratio, 2.05; 95% confidence interval, 1.13 to 3.74). Extrapolation would suggest that the current additional risk of 90 day mortality posed by TKA surgery alone (ignoring the risk of mortality due to unrelated causes) is in the region of 0.13% or 1 death in 750 TKAs, with other causes accounting for 0.07% (1 death in 1,428 cases).

We agree wholeheartedly with the sentiments of the piece that patients must be fully informed and cognizant of the risks they face when undergoing procedures, particularly elective procedures such as total knee arthroplasty. Providing patients with accurate and reliable information from contemporaneous data represents the cornerstone of informed consent.

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